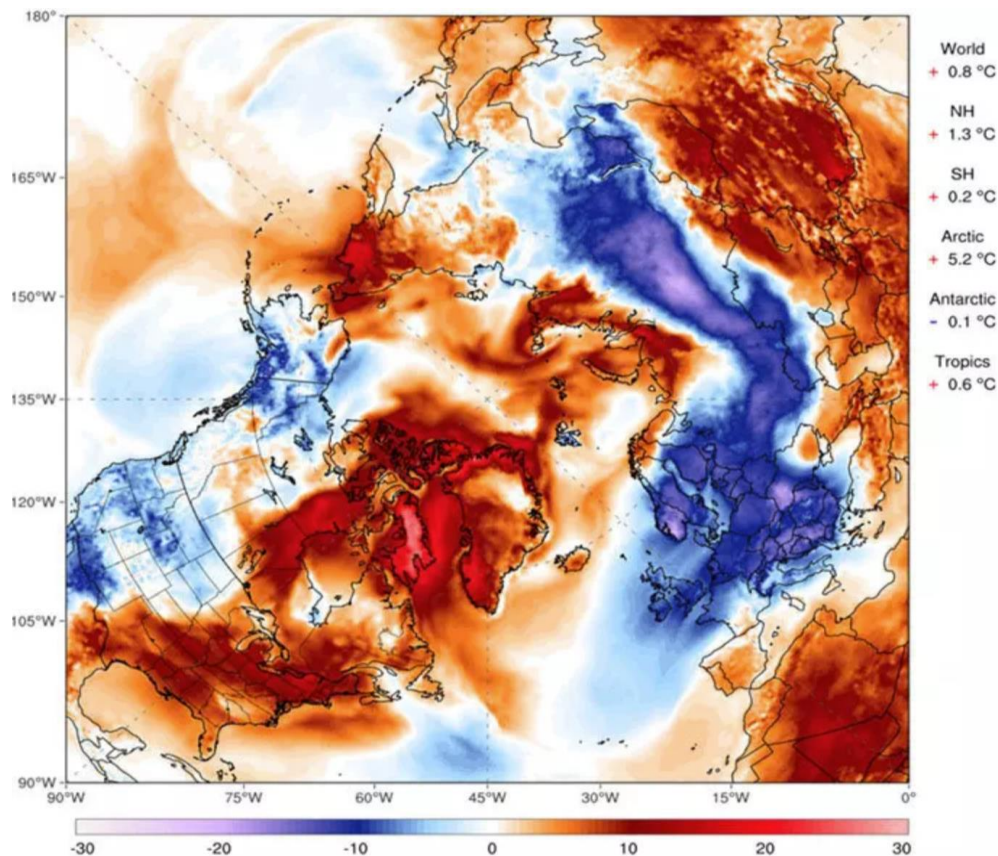


# ALL COLD ON THE WESTERN FRONT: TRADING THE OIL DISTILLATES MARKET IN THE AGE OF CLIMATE CHANGE

## INTRODUCTION:

In the midst of a particularly cold North American winter induced by an unexpected southwards movement of the polar vortex in late December 2017, New York Harbor Heating Oil surged nearly 15% from its December low through the end of January. This important petroleum middle distillate often used for heating in the Northeast states, achieved US refinery rate levels not seen since 2005. The last week of December saw distillate inventories rise by 8.9 million barrels, against expectations for a 477,000 barrels increase according to Energy Information Administration (EIA) data. In addition, European distillate markets have also been roiled by cold weather, namely by last week's "Beast from the East". Gasoil surged nearly 10% in the latter half of February in anticipation of the storm, paired with large drawdowns in EU middle distillate inventories. Most of Europe was approximately 15C colder than average and up to 20C cooler in select parts during the height of the storm. Nonetheless, as North American and European distillate markets see their refinery rates and inventories consolidate back to normal levels after a stormy start to 2018, we believe a fantastic trade opportunity to be emerging in the geographic heating oil/gasoil spread should freight rates follow their historical pattern.



March 1st Temperature Map, University of Maine Climate Change Institute

## ABOUT HEATING OIL & GASOIL:

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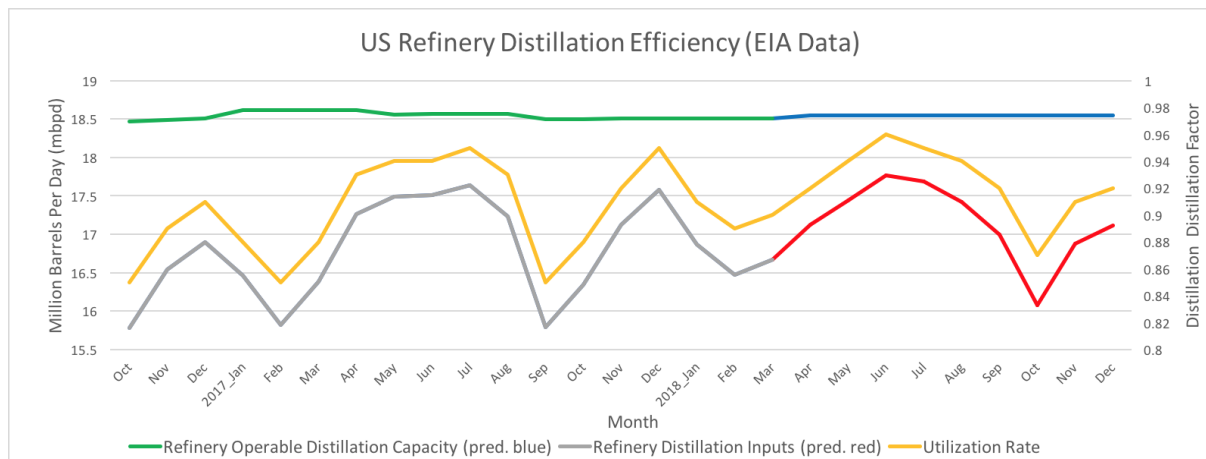
Heating oil is a refined US crude oil distillate closely related to diesel fuel, and its domestic usage is consumed primarily in the Northeast American continent where boilers are still a prevalent source of energy. Heating oil futures trade in 1,000 barrel lots and are physically delivered in New York Harbor.

Gasoil is heating oil's European counterpart. It can be used in both diesel engines for automotive purposes or home heating, primarily in Western Europe and around the Mediterranean. Low sulphur gasoil trades on the paper market in 100 metric ton lots (equivalent to 750 barrels), as long as it meets refinement requirements, and is physically settled in the Amsterdam-Antwerp-Rotterdam refining and storage hub.

Note that because heating oil trades in lots of 1,000 barrels and gasoil trades in lots of 750 barrels, the minimum heating oil/gasoil futures spread quantity is 4 lots. It requires 3 heating oil lots and 4 gasoil lots to achieve equivalent exposure.

## PRICE DRIVERS:

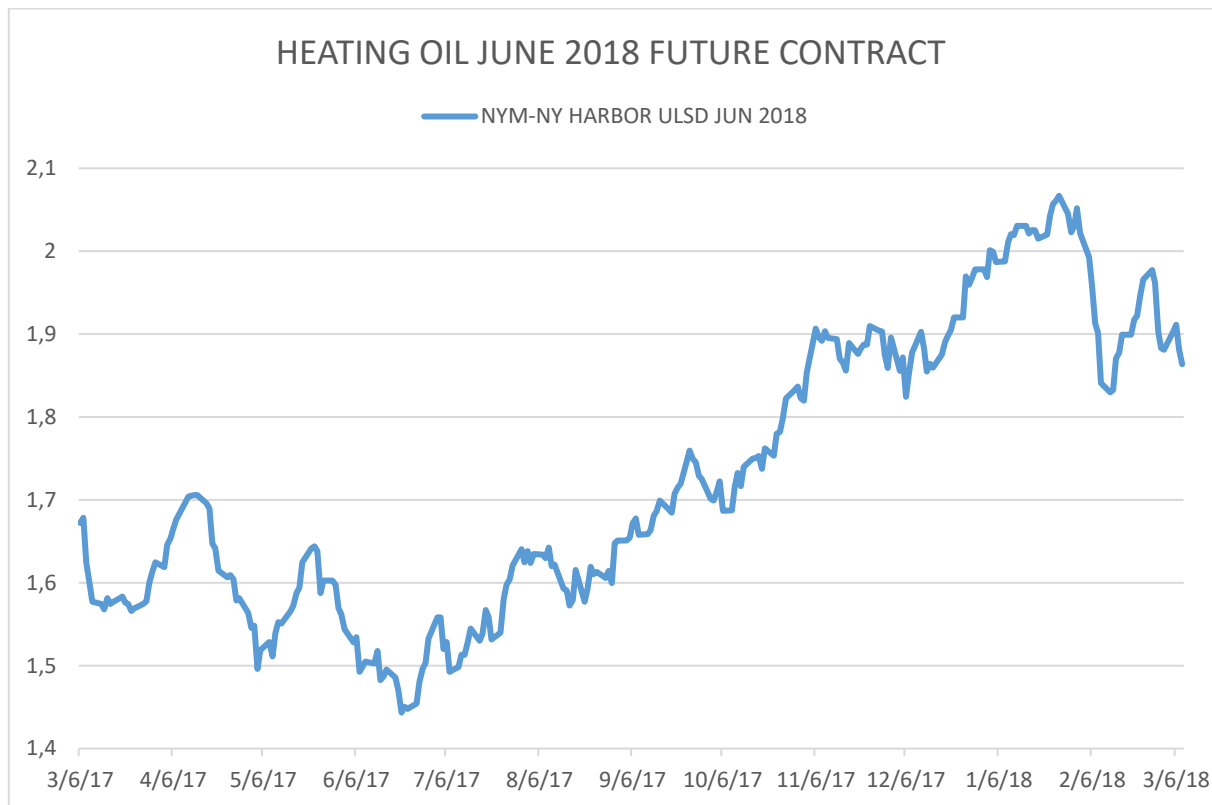
Heating oil and gasoil prices are in large part driven by supply and demand fundamentals such as production rates and inventory levels. It is important to keep in mind that these distillates are basically derivatives of WTI crude and Brent crude, and that factors affecting these markets can ultimately play a tremendous role in dictating the prices of refined products. For example, the graph below shows the historically seasonal cyclical nature of US refinery inputs (WTI crude) relative to available refinery capacity. Forecasts for June 2018 show that the EIA predicts a 25-month high at 96% operating efficiency for US refineries. It is a plausible assumption that the market has already priced in high refinery efficiency in June and thus partially the risk of higher than expected builds in distillate inventories, which would suppress prices. Revised expectations about inventory builds can only move so much higher when 96% refinery efficiency is forecasted, so June 2018 distillate contracts present a great way to trade around the market structure and to limit downside risk, particularly for traders looking to express long US distillate views on a trading horizon of 1-3 months. Any revisions downward from 96% efficiency would be positive for distillates like heating oil.



Heating oil and gasoil prices are also affected by weather and temperature forecasts. Both secondary commodities are incredibly seasonal given their heavy consumption during the colder winter months. If trading purely on something event-driven like a storm, a front-month contract might be preferable to capture market exposure most closely replicating the spot rate. However, if a trader is looking to express a view on a secular trend over a longer time horizon, trading a longer dated contract can help minimize exposure to erratic market shocks. When the

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colder than expected North American winter priced into heating oil markets in mid-to-late December, the spot rate moved roughly 15% while the June 2018 Heating Oil only jumped 12%.



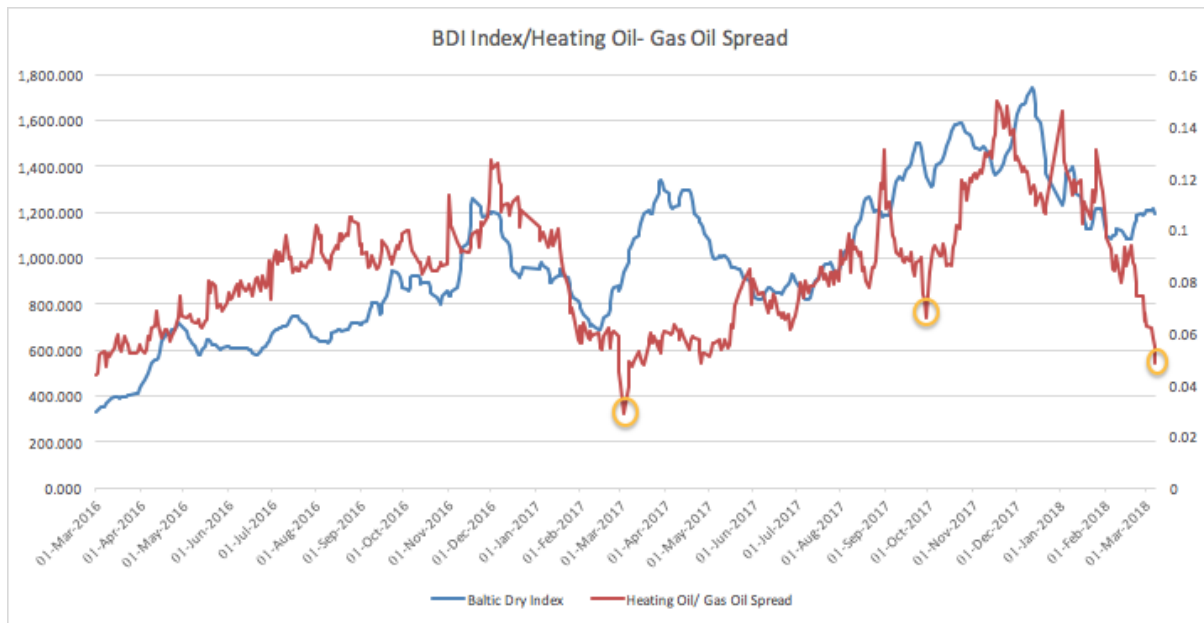
### **SPREAD DRIVERS:**

The heating oil/gasoil futures spread is a geographic spread useful for speculating on the relative strength and weakness of US vs. Europe domestic distillate markets. When supply exceeds demand in a given region, or vice-versa, the imbalance will be narrowed by physical arbitrage. This occurred for example this past February in the midst of winter storms in Europe, where a surplus in US heating oil inventories was redirected via cargoes across the Atlantic to help the region shore up unmet gasoil demand. Thus, shipping freight rates for said heating oil begin playing a rather significant role in dictating the convergence of distillate spreads.

### **THE BALTIC DRY INDEX DIVERGENCE:**

As the shipping costs are one of the main drivers of the heating oil/gasoil spread, we analysed the recent trends between both. We used the Baltic Dry Index (BDI) to analyse trends in ocean freight costs. BDI is a measure of the price of shipping major raw materials by sea. It was created by the London Baltic Exchange and it's based on daily assessments from a panel of shipbrokers. The BDI is a composite of 3 sub-indices, each covering a different carrier size: Capesize (100K+ deadweight tons), Panamax (60-80K DWT), and Supramax (45-59K DWT). In 2016, the global market for container shipping was in the depths of a multi-year slump caused by a spate of new ships, and a weakened Chinese GDP growth. As global trade has grown since then, the index has also performed well and freight costs have increased. This also had an effect on the heating oil/gasoil spread.

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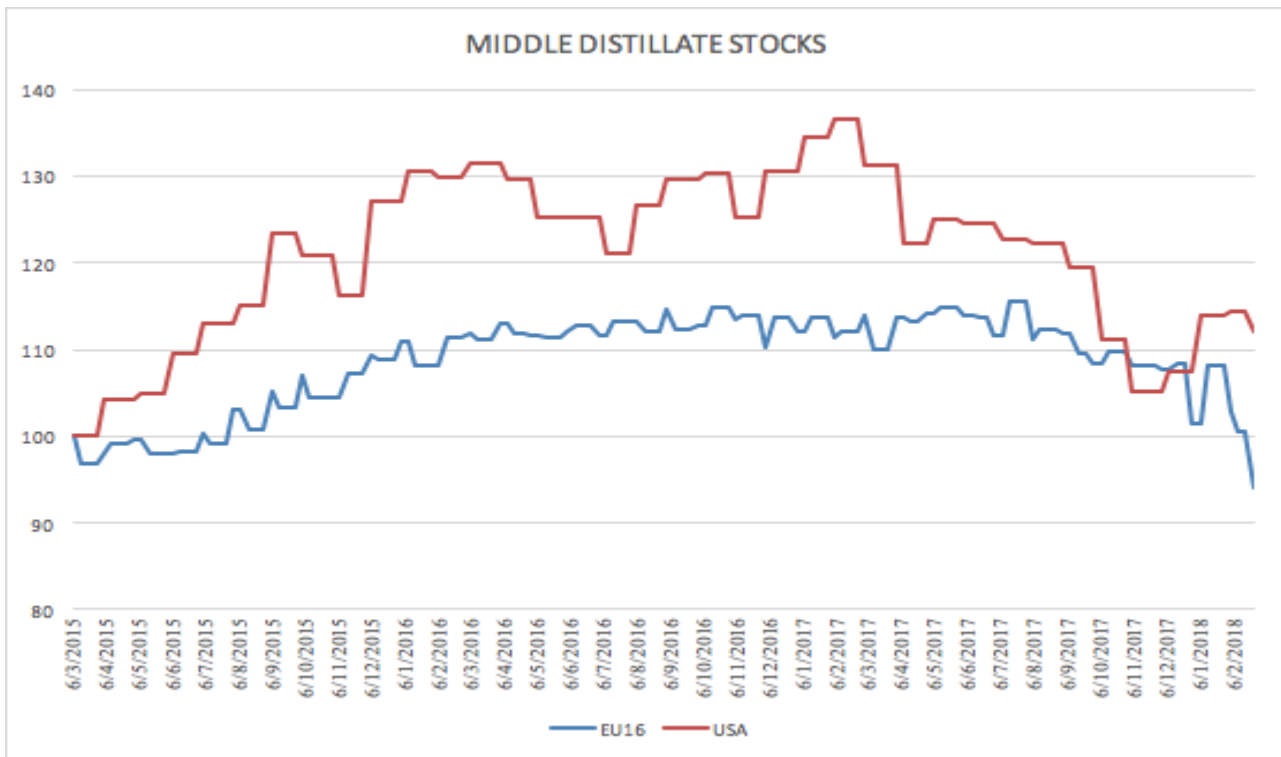


The graph shows many important features. First of all, they tend to move in similar trends through time, even if the spread presents more pronounced peaks and troughs. Moreover, the BDI Index shows a lag of around 15 days over the spread: when the spread increases, the effective freight rates tend to increase with a time lag. This is because most of the times rates are agreed in advance, and therefore the index is less price-sensitive than the futures on the refined products. Thirdly, we see a huge deviation in the trends of the time series: while shipping rates are almost steady, gasoil futures prices got much closer to those of heating oil. A similar situation happened in March 2017 with a fall in spread and an increase in bulk rates. As we noted in also smaller divergences, through time the BDI and the spread trends converged. Every time the spread went down without a complementary fall in the Baltic Dry Index, it pared losses in a very short period of time.

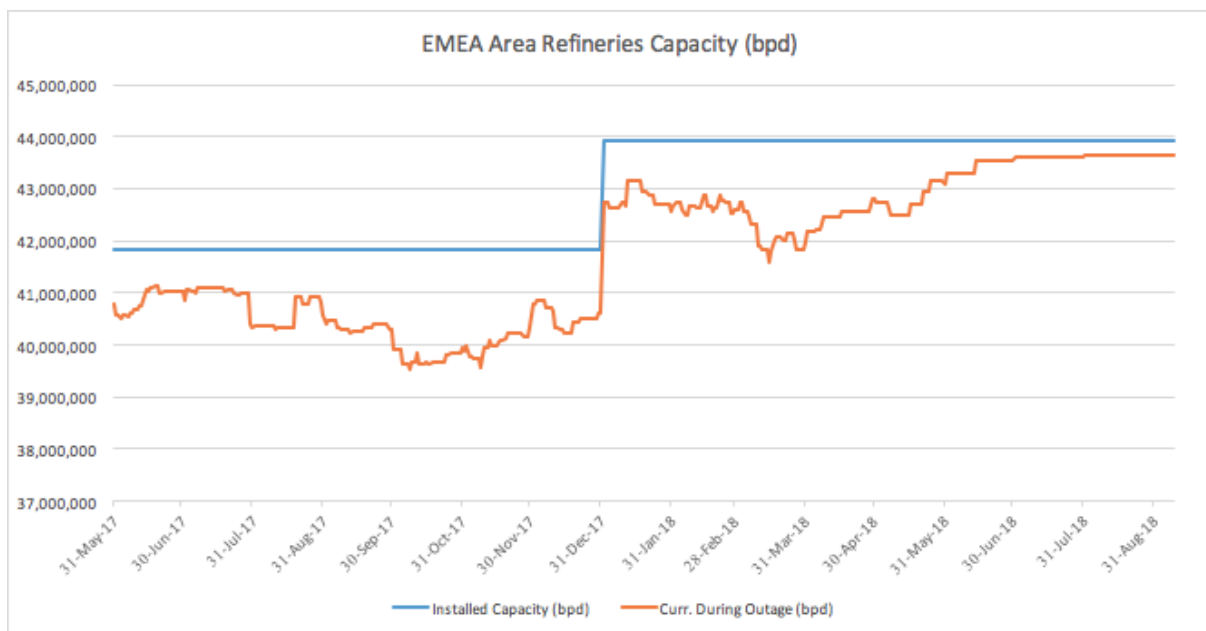
### **CURRENT STOCKS & COLD WEATHER:**

The major reason behind this drop in the heating oil/gasoil spread is the cold weather. Icy winds from Siberia and Polar Circle reached Europe towards the end of February, resulting in unreasonably low temperature and bringing snow to unusual spots ranging from Rome to Southwest England. This contributed to an incredible surge in the demand for heating oil and gasoil products from Europeans to fight the rigid weather, which also coincided with the closure of many refineries. The most immediate effect was a shortage in inventory: in Northern Ireland two in five households needed to ration the consumes of fuel. Middle distillate inventories in the EU16 area are at a three-year low, while in the US the inventories have been built up significantly after the harsh conditions that the region witnessed at the beginning of January. A decrease of the spread is therefore structural: it has narrowed from above 0.14 to 0.05 in just two months. However, as the inventory stocks start to build up again and as freight rates do not support such a low level of spread, the 0.05 level is not supported by fundamentals.

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It is also worth noting that the Europe, Middle East and Africa area is currently facing a big shortfall in the output of refineries due to some planned and unplanned shutdowns in refineries. The countries most affected were Russia and Italy. However, the vast majority of refineries should be back in operations by May, thus potentially increasing distillates supply in the short term. The effect of the enhanced installed capacity on prices has yet to fully price in on ICE Gasoil futures, delayed by the cold weather in the US and in Europe, as well as due to the numerous refinery shutdowns.



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## OUR STRATEGY:

Due to all the factors analysed above, we are long on Heating Oil/Gas Oil spread:

The recent divergence with the Baltic Dry Index suggests that the spread should spike in the upcoming months;

The main driver of the spread was the incredibly cold weather Europe witnessed in late February and early March and the consequent decrease in inventory. However, as closed EMEA refineries restart operations, and demand eases, the price difference with heating oil should widen again to normal levels.

We think that the best way to profit from this situation is by trading the spread on June futures. This is because the futures are short-term and therefore impacted by swings in prices. Moreover, the vast majority of shutdown refineries should be back in operations by May, thus bringing more supply to the European market. Furthermore, taking long-term positions on such spreads is risky due to the fact that weather is not fully foreseeable and an unexpected event could lead to losses even in a theoretically-sound position. This is why we have not recommended a strategy to continuously roll over the front-month contract. We also noted how three months is a safe timespan for convergence between BDI and the spread to converge. Our position would be, in particular, to buy NYM-NY HARBOR ULSD JUN 2018 (i.e. Heating Oil) futures contract; while selling the ICE-GAS OIL JUN 2018 future. It is also worth mentioning that a more sophisticated idea would entail shorting the Baltic Dry Index, which would be consistent with our convergence idea; but the futures on BDI are highly illiquid and traded in OTC markets, so we prefer to suggest a more feasible idea.

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